ABSTRACT

A method of calculating coefficients determining excitation amplitudes and phases for obtaining a desired antenna pattern of a circular array antenna comprising a plurality of antenna elements disposed circularly. Coefficients for a linear array antenna having the same number of antenna elements as the circular array antenna are determined by a Fourier series expansion in integral limits calculated from a beam direction and a beam width that are estimated from incoming radio waves and then are transformed into the coefficients for the circular array antenna. With this method, the beam direction and the beam width of the antenna pattern of the circular array antenna can be set at will. Consequently, this method enables adaptive control of sectored beams of sectored antennas at a base station or the like used for a mobile communication system, thus enhancing efficiency of the use of the antennas.